

**WHAT IS CLAIMED IS:**

1           1.    A method of hiding an Internet Protocol (IP)  
2    address of an originating IP terminal from a terminating  
3    IP terminal during a multimedia session in an IP-based  
4    network, said method comprising the steps of:  
5            sending media data packets from the originating IP  
6    terminal to an intermediate address translation function  
7    in the network, said data packets including an IP address  
8    of the originating IP terminal as a source address, and  
9    an IP address for the address translation function as a  
10   destination address;  
11           receiving the media data packets from the  
12   originating IP terminal in the address translation  
13   function;  
14           translating, by the address translation function,  
15   the source address from the IP address of the originating  
16   IP terminal to the IP address for the address translation  
17   function;  
18           translating, by the address translation function,  
19   the destination address from the IP address for the  
20   address translation function to an IP address for the  
21   terminating IP terminal; and  
22           sending the translated media data packets from the  
23   address translation function to the terminating IP  
24   terminal, said translated data packets including the IP

25 address for the address translation function as a source  
26 address, and the IP address for the terminating IP  
27 terminal as a destination address.

1 2. The method of hiding an IP address of an  
2 originating IP terminal from a terminating IP terminal of  
3 claim 1 wherein the step of sending media data packets  
4 from the originating IP terminal to an intermediate  
5 address translation function includes sending the data  
6 packets to a Media Resource Function (MRF) that includes  
7 address translation tables.

1 3. The method of hiding an IP address of an  
2 originating IP terminal from a terminating IP terminal of  
3 claim 1 further comprising, before the step of sending  
4 media data packets from the originating IP terminal to  
5 the intermediate address translation function, the step  
6 of sending the IP address for the address translation  
7 function to the originating IP terminal and the  
8 terminating IP terminal during setup of the multimedia  
9 session.

1 4. The method of hiding an IP address of an  
2 originating IP terminal from a terminating IP terminal of  
3 claim 1 further comprising the steps of:

4           sending return media data packets from the  
5           terminating IP terminal to the address translation  
6           function, said return data packets including the IP  
7           address for the terminating IP terminal as a source  
8           address, and the IP address for the address translation  
9           function as a destination address;

10          receiving the return media data packets from the  
11          terminating IP terminal in the address translation  
12          function;

13          translating, by the address translation function,  
14          the destination address from the IP address for the  
15          address translation function to the IP address for the  
16          originating IP terminal; and

17          sending translated returned media data packets from  
18          the address translation function to the originating IP  
19          terminal, said translated returned data packets including  
20          the IP address for the terminating IP terminal as a  
21          source address, and the IP address for the originating IP  
22          terminal as a destination address.

1           5.   The method of hiding an IP address of an  
2           originating IP terminal from a terminating IP terminal of  
3           claim 4 further comprising the steps of:

4           sending the IP address for the address translation  
5           function to the originating IP terminal during setup of  
6           the multimedia session, the originating IP terminal being

7 instructed to utilize the IP address for the address  
8 translation function as the destination address for the  
9 media data packets; and

10 sending the IP address for the address translation  
11 function to the terminating IP terminal during setup of  
12 the multimedia session, the terminating IP terminal being  
13 instructed to utilize the IP address for the address  
14 translation function as the destination address for the  
15 return media data packets.

1 6. A method of setting up a multimedia session in  
2 an Internet Protocol (IP)-based network in which an IP  
3 address of an originating IP terminal is hidden from a  
4 terminating IP terminal, said method comprising the steps  
5 of:

6 setting up an address translation function in the  
7 network that includes an address translation table;

8 receiving an Invite message in the address  
9 translation function that identifies an IP media address  
10 of the originating IP terminal;

11 receiving a response message in the address  
12 translation function that identifies an IP media address  
13 of the terminating IP terminal;

14 storing in the address translation table,  
15 instructions to translate the source address in media  
16 data packets having the IP media address of the

17 originating IP terminal as a source address to the IP  
18 address of the address translation function, and to  
19 translate the destination address to the IP media address  
20 of the terminating IP terminal;

21 sending the IP address for the address translation  
22 function to the originating IP terminal, the originating  
23 IP terminal being instructed to utilize the IP address  
24 for the address translation function as the destination  
25 address for the media data packets; and

26 sending the IP address for the address translation  
27 function to the terminating IP terminal, the terminating  
28 IP terminal being instructed to utilize the IP address  
29 for the address translation function as the destination  
30 address for return media data packets.

1 7. The method of setting up a multimedia session  
2 in an IP-based network of claim 6 further comprising  
3 storing in the address translation table, instructions to  
4 translate the destination address in media data packets  
5 having the IP media address of the terminating IP  
6 terminal as a source address to the IP media address of  
7 the originating IP terminal while leaving the source  
8 address unchanged.

1           8. The method of setting up a multimedia session  
2 in an IP-based network of claim 7 further comprising  
3 deleting the translation instructions from the address  
4 translation table when the multimedia session is cleared.

1           9. The method of setting up a multimedia session  
2 in an IP-based network of claim 6 further comprising the  
3 steps of:

4           sending an Invite message from the originating IP  
5 terminal to the originating IP terminal's home network;  
6           determining in the originating IP terminal's home  
7 network, whether the originating IP terminal subscribes  
8 to a hidden identity feature; and

9           routing the origination message to the address  
10 translation function, upon determining that the  
11 originating IP terminal subscribes to the hidden identity  
12 feature.

1           10. A method of hiding an Internet Protocol (IP)  
2 address of an originating IP terminal from a terminating  
3 IP terminal during a multimedia session in an IP-based  
4 network, said method comprising the steps of:

5           receiving, by an address translation function in the  
6 network, media data packets from the originating IP  
7 terminal, said media data packets including the IP  
8 address of the originating IP terminal as a source

9 address, and an IP address of the address translation  
10 function as a destination address;

11 translating, by the address translation function,  
12 the source address from the IP address of the originating  
13 IP terminal to the IP address for the address translation  
14 function; and

15 sending, by the address translation function,  
16 translated media data packets to the terminating IP  
17 terminal, said translated media data packets including  
18 the IP address of the address translation function as the  
19 source address.

1 11. The method of hiding an IP address of an  
2 originating IP terminal from a terminating IP terminal of  
3 claim 10 wherein the address translation function is a  
4 Media Resource Function (MRF), and the method further  
5 comprises setting up address translation tables in the  
6 MRF.

1 12. The method of hiding an IP address of an  
2 originating IP terminal from a terminating IP terminal of  
3 claim 10 further comprising, before the step of receiving  
4 media data packets in the address translation function  
5 from the originating IP terminal, the step of sending the  
6 IP address for the address translation function to the

7     originating IP terminal and the terminating IP terminal  
8     during setup of the multimedia session.

1           13. The method of hiding an IP address of an  
2     originating IP terminal from a terminating IP terminal of  
3     claim 10 further comprising the steps of:

4           receiving, by the address translation function,  
5     return media data packets from the terminating IP  
6     terminal, said return media data packets including the IP  
7     address for the address translation function as the  
8     destination address;

9           translating, by the address translation function,  
10    the IP address for the address translation function to  
11    the IP address for the originating IP terminal; and

12          sending, by the address translation function,  
13    translated return media data packets to the originating  
14    IP terminal, said translated return media data packets  
15    including the IP address for the terminating IP terminal  
16    as the source address, and the IP address of the  
17    originating IP terminal as the destination address.

1           14. A system for hiding an Internet Protocol (IP)  
2     address of an originating IP terminal from a terminating  
3     IP terminal during a multimedia session in an IP-based  
4     network, said system comprising:



5 a transmitter in the originating IP terminal that  
6 transmits media data packets from the originating IP  
7 terminal to an intermediate address translation function  
8 in the originating IP terminal's home network, said data  
9 packets including the IP address of the originating IP  
10 terminal as a source address, and an IP address for the  
11 address translation function as a destination address;

12 an address translation table in the address  
13 translation function, that translates the source address  
14 from the IP address of the originating IP terminal to the  
15 IP address for the address translation function, and that  
16 translates the destination address from the IP address  
17 for the address translation function to an IP address for  
18 the terminating IP terminal; and

19 a router in the address translation function that  
20 receives the media data packets from the originating IP  
21 terminal, and sends translated media data packets to the  
22 terminating IP terminal, said translated data packets  
23 including the IP address for the address translation  
24 function as the source address, and the IP address for  
25 the terminating IP terminal as the destination address.

1 15. The system for hiding an IP address of an  
2 originating IP terminal from a terminating IP terminal of  
3 claim 14 wherein the address translation function is a  
4 Media Resource Function (MRF).

1           16. The system for hiding an IP address of an  
2           originating IP terminal from a terminating IP terminal of  
3           claim 14 further comprising a signaling mechanism in the  
4           address translation function that sends the IP address  
5           for the address translation function to the originating  
6           IP terminal and the terminating IP terminal during setup  
7           of the multimedia session.

1           17. A system for setting up a multimedia session in  
2           an Internet Protocol (IP)-based network in which an IP  
3           address of an originating IP terminal is hidden from a  
4           terminating IP terminal, said system comprising:

5           an address translation table in an address  
6           translation function in the originating IP terminal's  
7           home network, said table being indexed to recognize the  
8           IP address of the originating IP terminal as a source  
9           address, and in response, said table translating the  
10          source address from the IP address of the originating IP  
11          terminal to an IP address of the address translation  
12          function; and

13          a signaling mechanism in the address translation  
14          function for:

15                  obtaining an IP address of the terminating IP  
16          terminal;

17            sending the IP address for the address  
18 translation function to the originating IP terminal, the  
19 originating IP terminal being instructed to utilize the  
20 IP address for the address translation function as the  
21 destination address for the media data packets; and

22            sending the IP address for the address  
23 translation function to the terminating IP terminal, the  
24 terminating IP terminal being instructed to utilize the  
25 IP address for the address translation function as the  
26 destination address for return media data packets.

1            18. The system for setting up a multimedia session  
2 of claim 17 further comprising:

3            a transmitter in the originating IP terminal for  
4 sending an origination message from the originating IP  
5 terminal to the originating IP terminal's home network;  
6 and

7            a Serving Call State Control Function (S-CSCF) in  
8 the originating IP terminal's home network that  
9 determines whether the originating IP terminal subscribes  
10 to a hidden identity feature, and that routes the  
11 origination message to the address translation function,  
12 upon determining that the originating IP terminal  
13 subscribes to the hidden identity feature.

1           19. An address translation function in an Internet  
2 Protocol (IP)-based network for hiding an address of an  
3 originating IP terminal from a terminating IP terminal  
4 during a multimedia session, said address translation  
5 function comprising:

6           a signaling mechanism that sends an IP address of  
7 the address translation function to the originating IP  
8 terminal and the terminating IP terminal during setup of  
9 the multimedia session;

10          a router that receives media data packets from the  
11 originating IP terminal, said media data packets  
12 including the IP address of the originating IP terminal  
13 as a source address, and the IP address of the address  
14 translation function as a destination address, said  
15 router also sending translated media data packets to the  
16 terminating IP terminal, said translated media data  
17 packets including the IP address of the address  
18 translation function as the source address; and

19          an address translation table that translates the  
20 source address in the media data packets from the IP  
21 address of the originating IP terminal to the IP address  
22 for the address translation function, and translates the  
23 destination address from the IP address of the address  
24 translation function to the IP address of the terminating  
25 IP terminal.

1           20. The address translation function of claim 19  
2 wherein the router also receives return media data  
3 packets from the terminating IP terminal, said return  
4 media data packets including the IP address of the  
5 terminating IP terminal as a source address, and the IP  
6 address of the address translation function as a  
7 destination address, said router also sending translated  
8 return media data packets to the originating IP terminal,  
9 said translated return media data packets including the  
10 IP address of the terminating IP terminal as the source  
11 address, and the IP address of the originating IP  
12 terminal as a destination address.

1           21. The address translation function of claim 19  
2 wherein the address translation table leaves the source  
3 address in the return media data packets unchanged, and  
4 translates the destination address in the return media  
5 data packets from the IP address of the address  
6 translation function to the IP address of the originating  
7 IP terminal.

1           22. A method of hiding an Internet Protocol (IP)  
2 address of a terminating IP terminal from an originating  
3 IP terminal during a multimedia session in an IP-based  
4 network, said method comprising the steps of:

5           receiving, by an address translation function in the  
6     home network of the terminating IP terminal, media data  
7     packets from the originating IP terminal, said media data  
8     packets including the IP address of the originating IP  
9     terminal as a source address, and an IP address of the  
10    address translation function as a destination address;

11          translating, by the address translation function,  
12    the destination address from the IP address of the  
13    address translation function to the IP address of the  
14    terminating IP terminal;

15          sending, by the address translation function,  
16    translated media data packets to the terminating IP  
17    terminal;

18          receiving, by the address translation function,  
19    return media data packets from the terminating IP  
20    terminal, said return media data packets including the IP  
21    address of the terminating IP terminal as a source  
22    address, and the IP address of the address translation  
23    function as a destination address;

24          translating, by the address translation function,  
25    the destination address in the return media data packets  
26    from the IP address of the address translation function  
27    to the IP address of the originating IP terminal;

28          translating, by the address translation function,  
29    the source address in the return media data packets from

30 the IP address of the terminating IP terminal to the IP  
31 address of the address translation function; and  
32 sending, by the address translation function,  
33 translated return media data packets to the originating  
34 IP terminal, said translated media data packets including  
35 the IP address of the address translation function as the  
36 source address.

1 23. A method of hiding an Internet Protocol (IP)  
2 address of an originating IP terminal from a terminating  
3 IP terminal, and hiding an IP address of the terminating  
4 IP terminal from the originating IP terminal during a  
5 multimedia session in an IP-based network, said method  
6 comprising the steps of:

7 receiving, by a first address translation function  
8 in a home network of the originating IP terminal, media  
9 data packets from the originating IP terminal, said media  
10 data packets including the IP address of the originating  
11 IP terminal as a source address, and an IP address of the  
12 first address translation function as a destination  
13 address;

14 translating, by the first address translation  
15 function, the source address from the IP address of the  
16 originating IP terminal to the IP address of the first  
17 address translation function;

18 translating, by the first address translation  
19 function, the destination address from the IP address of  
20 the first address translation function to the IP address  
21 of a second address translation function in a home  
22 network of the terminating IP terminal;

23 sending, by the first address translation function,  
24 translated media data packets to the second address  
25 translation function, said translated media data packets  
26 including the IP address of the first address translation  
27 function as the source address;

28 translating, by the second address translation  
29 function, the source address from the IP address of the  
30 first address translation function to the IP address of  
31 the second address translation function;

32 translating, by the second address translation  
33 function, the destination address from the IP address of  
34 the second address translation function to the IP address  
35 of the terminating IP terminal;

36 sending, by the second address translation function,  
37 twice translated media data packets to the terminating IP  
38 terminal, said twice translated media data packets  
39 including the IP address of the second address  
40 translation function as the source address;

41 receiving, by the second address translation  
42 function, return media data packets from the terminating  
43 IP terminal, said return media data packets including the



44 IP address of the terminating IP terminal as a source  
45 address, and the IP address of the second address  
46 translation function as a destination address;

47 translating, by the second address translation  
48 function, the source address in the return media data  
49 packets from the IP address of the terminating IP  
50 terminal to the IP address of the second address  
51 translation function;

52 translating, by the second address translation  
53 function, the destination address in the return media  
54 data packets from the IP address of the second address  
55 translation function to the IP address of the first  
56 address translation function;

57 sending, by the second address translation function,  
58 translated return media data packets to the first address  
59 translation function, said translated return media data  
60 packets including the IP address of the second address  
61 translation function as the source address;

62 translating, by the first address translation  
63 function, the source address in the translated return  
64 media data packets from the IP address of the second  
65 address translation function to the IP address of the  
66 first address translation function;

67 translating, by the first address translation  
68 function, the destination address in the translated  
69 return media data packets from the IP address of the

70 first address translation function to the IP address of  
71 the originating IP terminal; and  
72 sending, by the first address translation function,  
73 twice translated return media data packets to the  
74 originating IP terminal, said twice translated media data  
75 packets including the IP address of the first address  
76 translation function as the source address.